What is claimed is:

1. An apparatus comprising:

a personal computer having a plurality of expansion slots;

one or more switch card circuits coupled to said expansion slots, each including a switching integrated circuit capable of coupling data in at least one timeslot to at least one other timeslot on a time division multiplexed bus and further comprising an interface circuit for a time division multiplexed bus and a packet switched bus;

one or more port expansion units coupled together in a daisy chain by a time division multiplexed bus and a packet switched bus, each said daisy chain of port expansion units having a port expansion unit in the chain coupled to a switch card via a time division multiplexed bus and a packet switched bus which are extensions of the packet switched and time division multiplexed buses which couple each daisy chain together and a bus interface circuit for said buses, each port expansion unit including one or more port interface circuits for interfacing the port expansion unit to a central office plain old telephone service line or a T1 or PRI ISDN line or an extension telephone, and each port expansion unit including one or more digital signal processors coupled between said bus interface circuit and said port interface circuits and one or more microcontrollers coupled between said bus interface circuit and said one or more digital signal processors;

and wherein said personal computer is programmed with a PBX program to control said host computer to implement a PBX process that communicates with said microcontrollers on all of said port expansion interface circuits to determine call progress and port status and sends data to said microcontrollers to control signalling functions implemented by said port interface circuits and to control switching of said switch cards to implement at least some conventional PBX functionality;

and wherein said microcontrollers in each port expansion unit are programmed to read status signals from said port interface circuits and report said status to said PBX process and to receive commands from said PBX process and send commands to said port interface circuits to implement signalling functions and to

write tone data to a digital signal processor in said port expansion unit to cause tone generation on channels designated in data received from said PBX process for signalling purposes;

and wherein said one or more digital signal processors in said port expansion unit are programmed to receive data from said time division multiplexed bus for channels corresponding to PBX connections that are already made or which are to be made and said tone data and programmed to implement a volume control weighting function to mix said channel data and said tone data and send the resulting data to the appropriate port interface circuit for transmission to a central office and programmed to receive data from port interface circuits and place said data onto predetermined channels of said time division multiplexed bus and to receive data from said port interface circuits representing each incoming signalling tone and decode said data to determine which tone has been received and for interrupting said microcontroller for each said tone received;

and wherein said one or more microcontrollers are programmed to respond to each interrupt from said one or more digital signal processors and determine the tone which has been received and send a message to said PBX process identifying the tone which has been received.

2. The apparatus of claim 1 wherein said personal computer is further programmed, either as part of said PBX process or as part of another application program which includes voice mail or integrated voice response capability, to send data representing outgoing prerecorded announcements or voicemail messages to be played on one or more ports to the appropriate one or more of said port expansion interface units coupled to said one or more ports via packets on said packet switched bus, and wherein said one or more microcontrollers in said port expansion units that receive said packets are programmed to strip out the payload data of each said packet and write into a packet data buffer accessible by said one or more digital signal processors, and wherein said one or more digital signal processors are programmed to mix said packet data in with any tone data and channel data in said volume control weighting process and send the combined data out to the appropriate one or more said ports for transmission to said central office.

3. The apparatus of claim 1 wherein said personal computer is further programmed, either as part of said PBX process or as part of another application program which includes voice mail capability, to receive data representing incoming voicemail messages to be recorded from one or more of said port expansion interface units via packets on said packet switched bus, and wherein said one or more digital signal processors are programmed to receive data to be recorded as a voicemail message and save said data into a record buffer and interrupt at least one of said one or more microcontrollers, and wherein said one or more microcontrollers in said port expansion unit which receive said interrupt is programmed to retrieve said voicemail data from said record buffer, packetize said voicemail data and transmit it to said process on said personal computer that implements a voicemail function via said packet switched bus.

4. An apparatus comprising:

one or more port expansion circuits having port interface circuits for coupling to one or more telephone lines at one or more ports;

a personal computer having a time division multiplexed switching circuit therein which is coupled to said one or more port expansion circuits by a packet switched bus and a time division multiplexed bus, said personal computer further comprising one or more programs for controlling said personal computer to use said packet switched bus and WAV channels each of which is comprised of a WAV port which are switched by a PBX program to couple to at least one Actual Port Object mapped to a particular telephone line to transport play data to the port interface circuit for said telephone line and to transport record data back from said port interface circuit to a voice recording application process.

5. The apparatus of claim 4 further comprising circuitry in said port interface circuits cooperating with one or more programs controlling said personal computer for recognizing the various analog or digital signals that comprise loop start, ground start and wink start signalling protocols and for generating the appropriate analog and/or digital

signals needed to carry out signalling in said loop start, ground start and wink start signalling protocols.